

finding it impossible to pursue his medical work together with his duties as *locum tenens* in the chair of botany during the illness of Harvey, who was then the University professor, Wright definitely gave up his ophthalmological work in 1866. During the same period his attention was directed to the finds of fossils in the Kilkenny Coal-measures, and in 1866 he published, in collaboration with T. H. Huxley, an account of the fossil vertebrata from the Jarrow colliery.

In 1867 Wright went to the Seychelles Islands to study the fauna and flora of that group. Unfortunately all his collecting apparatus and preserving materials were lost on the way out by shipwreck. Notwithstanding this misfortune he succeeded in bringing back an important collection of animals and plants, and in the following years was able to publish a series of papers describing the new and interesting forms collected. These papers, together with others on collections made in Portugal and Sicily in 1868, appeared in the *Annals and Magazine of Natural History*, in the Transactions of the Royal Irish Academy, and in the British Association Reports, 1868-76. Shortly after his return from his travels Wright was appointed to the chair of botany in Trinity College, and he held this position until he resigned it in 1904. In 1874 he was elected secretary of the Royal Irish Academy. While University professor of botany, Wright was chiefly interested in herbarium work, and he devoted much labour and enthusiasm to arranging and indexing the valuable collection of plants belonging to the college. Hence it was no ordinary blow to him when, in 1882, through an ill-considered order of the college authorities, he found the whole collection thrown into confusion, and most of his own labours in the herbarium, and those of his predecessors, dissipated. His despondency was short-lived, and he soon buckled to the weary work of arranging once more, and during the next ten years accomplished, practically without assistance, the task of putting the collection into a condition fit for reference. While at this work he was also engaged, in collaboration with Th. Studer, on the report on the Alcyonaria of the *Challenger* expedition.

Speaking from the experience of one who knew only the latter end of Wright's life, his wide human sympathies won the affection of those who came into close contact with him. He was most desirous to forward younger men's work in science, and generously helped them by all the means in his power. It was a pleasure to him to put his varied and often recondite knowledge of the literature of natural science at their disposal. He showed the liveliest appreciation of the results obtained by the more modern generation of biologists. As a teacher he was more than ordinarily successful in stimulating the enthusiasm of his classes and in implanting in them the desire to carry out investigation. He had considerable powers as a conversationalist, and his travelling companions remained his life-long friends. At the same time he was sensitive to a fault, so that he was often misunderstood by those who were not intimately acquainted with him.

Besides his scientific work, he was deeply interested in antiquarian research, and, as president of the Royal Society of Antiquaries, Ireland, exerted himself by every means in his power to forward the investigation of the antiquities of Ireland. His whole career was marked with affection for his University, and some years before his death he presented Trinity College with a valuable collection of botanical books and journals. Since 1904 his health had been gradually failing, and his previous energetic temperament seemed to desert him. The announcement of his death, which took place on March 4, was a grief but not a surprise to his friends.

## NOTES.

THE fourth annual meeting of the British Science Guild will be held at the Mansion House, at 4 p.m., on Friday, March 18, under the presidency of the Lord Mayor. An address will be delivered by the Right Hon. R. B. Haldane, F.R.S., and it is expected that Lord Strathcona, the Right Hon. Sir George Reid, Dr. Warren (the Vice-Chancellor of Oxford University), Sir Ernest Shackleton, Sir Alfred Keogh, and Colonel Sir John Young will address the meeting.

WE announce with great regret the death on March 4, in his fifty-fourth year, of Prof. K. J. Ångström, professor of physics in the Royal University of Upsala.

THE death is announced, on March 14, of Dr. H. Landolt, professor of chemistry at the University of Berlin from 1891 until 1905, at seventy-eight years of age.

THE annual general meeting of the Chemical Society will be held on Friday, March 18, when Prof. Harold B. Dixon, F.R.S., will deliver the presidential address, entitled "The Union of Hydrogen and Oxygen in Flame."

WE notice with regret the announcement of the death, on March 14, of Dr. J. C. Brown, professor of chemistry in the University of Liverpool, at sixty-seven years of age.

WE regret to see the announcement of the death of Prof. E. Philippi, professor of geology and palæontology in the University of Jena, and geologist to the German Antarctic Expedition of 1901-3.

MESSRS. SANDERS AND CO., 71 Shaftesbury Avenue, are making arrangements to hold a series of one-man exhibitions from leaders of natural-history work in photography. The first will open early in May, and will be the work of Mr. Richard Kearton. Admission will be on presentation of visiting card.

A REUTER message from Berlin announces that a regular airship passenger service will be started on May 15 from Munich to Starnberg and Ober-Ammergau. A dirigible of the Parseval type will be used, with a gas capacity of 6700 cubic metres. It will carry twelve passengers besides the crew. It will have two motors, each of 100 horsepower, and will make trips alternately to Starnberg and Ober-Ammergau.

THE King of the Belgians has announced his intention to make a grant of 40,000*l.* for investigations into the nature and prevention of sleeping sickness. Stations for the study of the disease will be established, the number of doctors will be doubled, and missionaries will be trained in preventive measures at Leopoldville. King Albert will also give 20,000*l.* for the provision of hospitals for natives of the Congo.

THE committee organised a few weeks ago to arrange for a thorough scientific investigation of pellagra appeals for funds to enable it to commission Dr. Sambon to undertake the inquiry. The minimum sum required is 600*l.*, but so far only 230*l.* has been subscribed, including 150*l.* promised by the Colonial Office on condition that a further amount of 450*l.* is found. Subscriptions should be sent to Mr. James Cantlie, honorary secretary and treasurer, Pellagra Investigation Committee, 140 Harley Street, W.

WE have been asked to state that the annual general meeting of the Society of Dyers and Colourists will be held this year in the Municipal School of Technology, Manchester, on Friday, March 18, at 4 p.m., when the retiring president, Prof. R. Meldola, F.R.S., will deliver

an address on "Tinctorial Chemistry—Ancient and Modern." The presidency of the society is to be taken over by Sir Frederick Cawley, Bart., M.P.

THE President of the Board of Trade has appointed a new Advisory Committee on Commercial Intelligence. The chairman of the committee will be the President of the Board of Trade, or, in his absence, the senior Board of Trade representative present. The committee is to hold office for three years. The committee is appointed to advise the Board of Trade (a) on the work of the Commercial Intelligence Branch and on such matters relating to foreign tariffs and other commercial questions as the Board may refer to them, and (b) as to commercial missions abroad or other means of obtaining and diffusing information for the benefit of British trade.

AN international expedition started on March 13 for the Peak of Teneriffe to investigate the effect of high altitudes and sunshine on medical and biological processes. From a note in the *Times* of March 12 it appears that the party included Prof. Pannwitz, of Charlottenburg, the president of the International Commission for the Study of Biological and Medical Effects of High Altitudes and Sunshine; Dr. Barcroft and Dr. Douglas (Cambridge University), representing England; Prof. Zuntz and Dr. Neuberg, representing Germany; Dr. Mascot and Dr. Plasse, representing France; and Prof. Düring and Dr. H. von Schrötter, representing Austria. Prof. Zuntz has already done work in this direction on Monte Rosa, and his observations will be elaborated by the expedition. Preliminary meteorological work has been done by Prof. Hergesell. Dr. J. Mascot, of Paris, has joined the expedition for the purpose of studying Halley's comet under the favourable conditions afforded by the Peak of Teneriffe. Prof. Müller and Dr. Kron, of the Potsdam Observatory, are expected to join the expedition within a week or two.

THE annual general meeting of the Ray Society was held on March 10. The report of the council stated that the society's publication for 1909, a supplementary part of the "British Nudibranchiate Mollusca," has been delayed owing to Sir Charles Eliot's absence from England. For the present year the issue will be vol. ii., part ii., of the "British Marine Annelids," by Prof. W. C. McIntosh, completing the Polychæta. Two volumes are in preparation for 1911, being vol. iv. of the "British Desmidiaceæ," by Mr. W. West and Prof. G. S. West, and vol. iii. of the "British Tunicata," containing the composite species and completing the work. This will complete Messrs. Alder and Hancock's works published by the society. Of other works in preparation, the first instalment of Dr. Malcolm Burr's "Earwigs of the World" will probably be the issue for 1912. An offer by the Rev. Hilderic Friend to contribute a work on the British earthworms has been accepted. Lord Avebury, F.R.S., was re-elected president of the society; Dr. S. F. Harmer, F.R.S., was elected a vice-president; Mr. F. DuCane Godman, F.R.S., was re-elected treasurer; and Mr. John Hopkinson was elected secretary.

THE death of Dr. A. E. Dolbear, for many years professor of physics at Tufts College, Massachusetts, removes one of the most remarkable of American thinkers and inventors. His inability to exploit his discoveries is alleged by his friends to be the only reason why his name is not more widely known. In addition to pioneer work on the telephone, wireless telegraphy, electric waves, and Röntgen rays, among inventions to be placed to his credit are a writing telegraph, a spring balance ammeter, an electric gyroscope to illustrate the rotation of the earth, and a new

system of incandescent lighting. The most notable of his books was "Matter, Ether, and Motion." Prof. Dolbear was born at Norwich, Connecticut, in 1837. After serving as a "bound boy" on a New Hampshire farm, he worked successively in a ship-building yard and a printing office, studying geology, mineralogy, and astronomy in his scanty leisure. Later he "taught school" in Missouri, and worked in the U.S. armoury at Springfield. At the age of twenty-nine he entered the University of Michigan as a student of chemistry, and in six weeks became assistant instructor in that subject. The next year he was appointed an assistant professor in Kentucky University, and then professor of physics and chemistry at Bethany College, West Virginia. While holding the latter post he was three times elected Mayor of Bethany. His main career began in 1874, when the discovery of his scientific ability led to his being called to Tufts College.

A SUMMARY of gales recorded at anemograph stations in 1909 has just been issued by the Meteorological Office. Gales occurred in some part of the British Islands in every month of the year with the exception of June, but naturally gales occurred with far less frequency in the summer than during the winter. The most stormy months were January, October, and December. Strong gales, with a mean wind velocity of 47 or more miles an hour, force 9 of Beaufort notation, did not occur in May, June, or July. The absolute maximum velocity of wind in a gust was at the rate of 90 miles an hour, at Scilly on October 23, but the maximum velocity for an hour for this gale was only 70 miles. The next highest velocity in a gust was 78 miles, at Scilly on January 16, and this was followed, in order, by a gust of 76 miles an hour, at Southport on December 3. Gusts of 75 miles an hour occurred at Pendennis on November 18 and December 2, and at Scilly on December 2-3. No anemograph station had a higher wind velocity than 70 miles for an hour during the year. The summary gives the percentage of frequency of each unit of Beaufort notation at several stations grouped separately for the western and southern coasts combined, and for the eastern coasts and inland stations combined. It is comparatively exceptional at any station for winds of 8 and upwards of Beaufort notation to amount to 1 per cent. of all winds, and winds of gale force are less frequent in the eastern than in the western district.

DR. PENCK, the president of the Berlin Geographical Society, has rightly protested against the idea that there can be any objection to the expedition of any nation helping in Antarctic research on whatever route it may prefer to adopt. The unknown Antarctic area is so vast that any overlap and waste of effort would be deplorable, and the four Antarctic expeditions now being organised will probably be working in sufficiently distant fields to render any formal agreement unnecessary. The German expedition under Lieut. Filchner proposes to start from the Weddell Sea, which will also be used as the base of the American and Scottish expeditions. This part of Antarctica is still absolutely untrdden; the Scottish expedition under Dr. Bruce, which discovered Coats Land, was not able to land on it, and did not even see a convenient harbour. Ice navigation in the Weddell Sea is probably very difficult and uncertain, and Coats Land may be inaccessible in some seasons. The three-fold effort, by increasing the chances of success, is therefore to be welcomed, as at present this part of Antarctica is the most promising of important geographical results. If the three expeditions all establish their landing on this unknown coast, they will each find ample room for independent work.



INTEREST in the North Polar question has again been roused by the refusal of the Naval Committee of the United States House of Representatives to recommend any honour to Commander Peary until he has submitted proofs of his attainment of the Pole. As an expert committee appointed by the National Geographic Society of Washington, and consisting of three such competent authorities as Dr. H. Gannett, Admiral Chester, and Mr. O. H. Tittman, unanimously agreed that Peary reached the Pole, it may be felt that the Naval Committee might have accepted this verdict. The official committee of the House of Representatives is, however, hardly to be blamed for its caution in declining to recommend a Parliamentary honour until the official data have been published, or at least submitted to it. The scepticism felt by some authorities as to Peary's claim is based partly on his great acceleration after leaving his last white colleagues—his pace increasing from 9.6 miles to 26.4 miles a day on the journey north, and to 44 miles on the southward journey until he rejoined Captain Bartlett—and partly on the statement that he took noon observations at the Pole; at that date the apparent path of the sun, as seen from the North Pole, would have been so nearly horizontal that noon observations would have been practically impossible. The National Geographic Society of Washington has been most intimately connected with Peary, and might be prejudiced in his favour; but no such suspicion could be felt in regard to the committee it appointed. The report of that committee was, however, a brief statement of its conviction, and the materials on which its judgment was based are not yet available for public information. If Peary at his most northern point on April 6 was able to determine noon from the sun, he was probably some little distance south of the Pole. To determine the actual mathematical point of the Pole would be impossible during the hasty journey of a lightly equipped sledge party; but any slight error in the observations would not affect the conclusion adopted by most British geographers that Peary reached sufficiently near the Pole to justify his claim. It is to be hoped, however, that his full data will be soon published.

IN *Man* for February Mr. H. A. Rose describes various modes of establishing fictitious kinship now current in the Panjab. Such are the ties between people who have joined in the same pilgrimage; the *pāhul* or initiation rite of the Sikhs; the exchange of wristlets by youths, of turbans by men, and sheets by women; adoption by a patron to secure protection. These are important as illustrating the practices of adoption and succession, and they also throw light on the methods by which tribes grew under a process of accretion before the present rigid rules of exogamy and endogamy came to be established.

THE Botet collection of fossil mammals from the Pampa of Argentina, belonging to the city of Valencia, Spain, is one of the most important collections of its kind, but has not hitherto been exhaustively studied or described. It comprises, not only fine specimens of the ordinary ground-sloths and glyptodonts, Smilodon, and hoofed mammals, but also several new species and a remarkably well-preserved human skeleton. In view of its scientific interest, Prof. E. Boscá, of the University of Valencia, has arranged to prepare an illustrated descriptive catalogue of the collection, and, as a preliminary to this work, he is at present in London studying the original specimens described by Owen. After visiting the European museums Prof. Boscá will proceed to Argentina to examine the rich collections in Buenos Aires and La Plata.

NO. 2107, VOL. 83]

ACCORDING to the second annual report, the demonstrations and lectures on natural history and economic subjects instituted by the Norwich Museum Association continue to meet with popular appreciation and support. The subjects of the 1908-9 course included the food of birds, flies as disease-disseminators, fungoid diseases of plants, Norfolk soils, and insect fruit-pests.

IN the February number of *Nature* an anonymous correspondent describes two albino Norwegian lemmings, of which one is figured. Such albinos are stated to be extremely rare. In the same issue another writer contributes a notice of the capture by a trawler of the rare fish *Macrurus coelorhynchus*, a species first described in 1842, and of which very few examples have since been taken.

At the close of an article in the February number of the *American Naturalist* on the question whether regeneration in animals exhibits a repetition of the ontogenetic and phylogenetic processes, Mr. Sergius Morgulis observes that "while the evidence shows that, as a rule, organs originate from similar germ-layers, both in ontogeny and in regeneration, there are also some striking exceptions to the rule. The hypothesis that the method of regeneration is causally influenced by the course of ontogeny is, therefore, quite unnecessary as a corollary. With the elimination of this hypothesis the conception of the atavistic nature of regenerated peculiarities, *i.e.* the conception of a repetition in regeneration of phylogenetic processes, loses its chief logical support. This last theory, however, is also objectionable, (1) because of its inherent inconsistency, (2) because it depends upon more or less problematic assumptions."

IN a paper entitled "Ungarnered Grain," published in the January number of the *Victorian Naturalist*, Dr. T. S. Hall directs attention to the need of further research into the natural history of Victoria. Sponges and protozoans, he points out, are still very imperfectly known, and much the same is the case with regard to crustaceans. Among fishes, it requires to be ascertained whether *Galaxias* spawns in fresh water, while no one appears to be able to produce definite evidence that the Australian eel breeds at great depths in the sea, or if, indeed, it journeys to the ocean at all. Further information is likewise required with regard to the breeding-habits of the native frogs, especially whether or no they require water during the metamorphosis.

To the February number of the *Zoologist* Colonel C. E. Shepherd communicates an account of the ear-bones of fishes, and more especially the one known as the asteriscus. Three pairs of these bones are developed, of which the sagitta is normally the largest, the asteriscus being the otolith found in the lagena of the sacculus, while the third bone is the lapillus. The form of the sagitta has long been known to be more or less constant and characteristic for the different family groups, and the author shows that the same holds good for the asteriscus, of which he claims to be the first to describe and illustrate the details in a number of species. Attention is specially directed to the great development of the asteriscus at the expense of the sagitta—which is reduced to a minute rod—in the members of the carp family. That this cannot be attributed to a fresh-water life is demonstrated by the fact that in the pike and perch the normal relative proportions of the sagitta and asteriscus are retained, and the reason for the special feature in the carp tribe has therefore still to be sought. As regards the functions of the otoliths, the

author is inclined to support the theory that these include both hearing and the maintenance of the bodily equilibrium.

THE February issue of the Bulletin of the Sleeping Sickness Bureau (No. 14, vol. ii.) appears with cut edges, which will be found a great convenience by readers. It contains the usual useful *résumé* of papers dealing with trypanosomes and their agents of transmission, sleeping sickness, &c.

THE Bulletin of the Johns Hopkins Hospital for January (xxi., No. 226) contains two essays bearing on the history of medicine, one an address by Prof. Osler on Michael Servetus, who was done to death for heresy at Geneva in 1553, the other by Dr. Steiner on Dr. Lemuel Hopkins, a distinguished, though forgotten, American student of tuberculosis, who lived in the second half of the eighteenth century.

In a paper dealing with the sewage-pollution of shell-fish (*Journal of Hygiene*, vol. ix., No. 4, 1909, p. 412) Mr. James Johnstone points out that at present no public authority possesses legal powers to deal with the question of the contamination of shell-fish. Polluted mussels supplied with clean sea-water undergo purification with rapid partial disappearance of the intestinal bacteria contained in their tissues—in four days, for instance, the number of contained bacteria had been reduced by about 93 per cent.

THE annual report for 1908 of the curator of the technological museums in Sydney has been received. Special reference is made to the collection of building and ornamental stones, in connection with which a brochure, containing coloured reproductions of specimens quarried in the colony of New South Wales, was issued. Notice is also given of a forthcoming volume on the "pines" of Australia, similar to the monograph on the Eucalypts, which will deal with the economics of Australian conifers.

THE action of light on the expansion of buds of woody plants is the subject of a paper contributed by Mr. V. Lubimenko to the *Bulletin de l'Académie Impériale des Sciences*, St. Petersburg (No. 2, 1910). Experiments were made with twigs placed under bell-jars covered with thicknesses of white or black paper. In certain cases a diminution of light retarded development, in others it accelerated it; but in all cases complete darkness caused a marked retardation in the expansion of the buds. The author advances the opinion that light is necessary for the internal chemical changes which precede growth.

THE report on the Botanic Station, Experimental Plots and Agricultural School, Dominica, has recently been issued, and shows that much useful work has been done in distributing among planters crops likely to prove of commercial value or possessing striking features from an ornamental point of view. Much attention has been devoted to the manuring, cultivation, and general management of cacao; the requirements of the lime industry have been investigated, and some preliminary work has been done on the planting of rubber.

In view of the enormous increase in the number of publications devoted to insect pests, it is becoming more and more necessary to have occasional summaries of the work done in a particular subject. We are therefore pleased to see that a "Bibliography of Sugar-cane Entomology," drawn up by Mr. G. W. Kirkaldy, has been issued as Bulletin No. 8 of the Hawaiian Sugar-Planters' Association. The list of papers seems to be very complete; indeed, the author tells us that a considerable number of apparently worthless notes have been included

because of the difficulty of drawing a sharp line between what is and what is not useful. The bulletin is divided into two parts: a list of work, arranged under authors, and a preliminary list of the insects, spiders, &c., of the sugar-cane fields, with cross-references to the papers in the first part in which they are mentioned.

A RECENT issue (No. 30) of the *Transvaal Agricultural Journal* contains an article on the olive, urging that more attention should be paid to this crop. The olive was introduced into Cape Colony many years ago, but for some reason or other has never become very popular. It does not bear a paying crop until it is at least six or seven years old, and the oil has to compete with highly adulterated commercial products; but there is a good deal of land in the Transvaal that would give satisfactory crops either with or without irrigation, and one or two trial plantations are already in existence which promise to be successful. We have also received from the Transvaal Department of Agriculture some Farmers' Bulletins dealing with sunflower cultivation, prickly pear for stock food, and the cultivation and preparation of the calabash pipe gourd. The sunflower does not appear to be a very promising crop, as it is expensive to handle and is largely produced in Russia.

PROF. DOVE, of Göttingen, contributes a suggestive article on the aims and methods of commercial geography to Petermann's *Mitteilungen*. The paper deals with the use of the population unit in discussion, the limits of effective capacity of trade routes, the relations of topography and climate to trade, and similar matters, and subjects some of the methods in ordinary use to somewhat severe criticism.

A NEW map showing the distribution of thunderstorm frequency in central and northern Europe, by Dr. E. Alt, appears in Petermann's *Mitteilungen*. The smallest yearly frequency occurs in Cornwall, north-western Scotland, Norway, and the Arctic coast, where the average is under five. The region of most frequent thunderstorms—more than thirty a year—appears in northern Italy and the Carpathians.

FROM a catalogue issued by Spindler and Hoyer, of Göttingen, we see that ninety-six seismographs, designed by Prof. Wiechert, have recently been distributed in various parts of the world. One has been installed by the National Physical Laboratory at Eskdalemuir. The largest of these instruments carries a mass of 17,000 kilos., and the motion of the ground relatively to this is magnified 2200 times. There is, however, a 5 per cent. loss in consequence of the inertia and elasticity of the system of levers. The instrument costs 5000 marks.

BETWEEN July 1 and December 31, 1909, at Shide, in the Isle of Wight, 279 earthquakes were recorded. Each of these records is confirmed by corresponding observations at other observatories, whilst many of them are known to be the surviving efforts of earthquakes which were large at a distant origin. They are therefore of great importance. The instruments at Shide are of the type adopted by the British Association, recording on paper moving at a rate of 4 mm. per minute. During the same interval of time Hamburg recorded 123 shocks, Strassburg 64, and Laibach 42. These great differences in the number of records obtained at different stations appear to be almost entirely due to the type of instrument employed. Those which record on smoked paper are excellent for large disturbances, but fail to record movements which are small.

FROM Dr. Fielding H. Garrison we have received reprints of articles on "Josiah Willard Gibbs and his Relation to Modern Science" and "Physiology and the Second Law of Thermodynamics," which have appeared in the *Popular Science Monthly*, May-August, 1909, and the *New York Medical Journal* for September 25, 1909. The author is assistant librarian to the Army Medical Library at Washington. His writings, notably the one on Willard Gibbs, afford a lucid exposition of the principles of thermodynamics based on an intimate study of the large mass of literature which has centred round this important branch of physics. Most conspicuous, too, is Dr. Garrison's clear appreciation of the debt which experimental science owes to the late Prof. Gibbs for original work essentially mathematical in character. What mathematics can and must do for science, and, on the other hand, what it should never try to do, are points often ill understood, even by workers on physical science that have been trained on orthodox academic lines, and few people have presented the case so effectively as has been done by the army doctor who has written these papers.

A SERIES of experiments have been made recently at the Bureau of Standards at Washington to determine the proper source of light to combine with the mercury arc to produce the best imitation of average daylight, and the results are embodied in a paper by Mr. H. E. Ives in the November (1909) number of the *Bulletin*. It appears that of the ordinary lights, the Welsbach mantle, the carbon, the tungsten, and the tantalum filament glow lamps are all nearly complementary in colour to the mercury lamp, and have, therefore, only to be combined with the latter in suitable proportions to produce satisfactory imitations of daylight. The best proportions are 1 candle-power of mercury light to 0.57 candle-power of Welsbach light, 0.54 of tungsten, or 0.50 of carbon glow light. The watts per candle-power required are 0.80 for the tungsten and 1.4 for the carbon filament combinations respectively. Although the Welsbach cannot be compared in this way, the author finds from the cost of running that the Welsbach mercury combination compares closely with the tungsten mercury one in efficiency.

THE *Journal de Physique* for February contains a communication, made to the Société française de Physique by M. Charles Lallemand, on tides in the earth's crust (see *NATURE*, October 14, p. 457). After a description of the double horizontal pendulum of Hecker, the author explains how the diurnal tilting of the crust, due to the heating of the tropics, may be separated from the smaller semi-diurnal tilt due to the solar tide, and gives diagrams showing the extent of each as determined at Potsdam. The first has a semi-amplitude of the order 10-20 thousandths of a second of arc, the second 2-6 thousandths. Further investigation allows the lunar tide to be determined, and this is found to have a semi-amplitude of the order 10 thousandths. It is hoped by the help of still more sensitive apparatus to detect the half-monthly tide, which should have a semi-amplitude about half that of the semi-diurnal solar tide.

THE Bausch and Lomb Optical Co., 19 Thavies Inn, E.C., has afforded an opportunity to a representative of *NATURE* to examine the Balopticon lanterns which it has just produced and see a demonstration of their functions. The lanterns are designed for transparent or opaque projection, and they combine neatness with efficiency. The arc-lamps are of special design and of small dimensions, and the bodies of the lanterns are designed to suit the lamps, so that the lanterns, as a whole, are delightfully compact. The lamp-case is lined with asbestos, and the

top has the form of a light-tight ventilator, securing a minimum heating effect during operation. The ventilating arrangement is really very satisfactory, and the whole mechanical construction is commendable. The lantern suffers, however, from the merits of its qualities, inasmuch as an ordinary arc-lamp cannot be used with it. Notwithstanding this, the Balopticon, which is made in various models, provides, at a reasonable price, a projection apparatus which is well designed and should be extensively used. An instructive pamphlet referring to the Balopticon lanterns is issued by the Bausch and Lomb Optical Co.

THE first volume in celebration of the jubilee of Prof. Arrhenius was noticed in *NATURE* of February 3. The second volume (*Zeitschrift für physikalische Chemie*, Band 70) has now been issued. It contains forty-five papers by chemists of every nationality. The attention of both supporters and opponents of Arrhenius's theory of electrolytic dissociation may be directed to the article by Mr. G. N. Lewis "On the Use and Abuse of the Ionic Theory."

VARIOUS articles of glassware for laboratory use, including beakers, retorts, boiling, Erlenmeyer, and Kjeldahl flasks, have been forwarded for inspection by Messrs. John J. Griffin and Sons, Ltd., of Kingsway, London, W.C. They are made from a new variety of laboratory glass now being produced by the Rhenish Glass Works, Cologne-Ehrenfeld. This glass is said to be equal to Jena ware as regards resistance to the action of water and of various chemical reagents, whilst having an appreciable advantage in price. The apparatus submitted, though perhaps a little heavier than usual, is well made, and satisfactory in lustre and general appearance. Its refractoriness towards the action of water, acids, and alkalis could, of course, only be proved by trial, but in this respect the behaviour of the glass is attested by certificates quoted, including one from the Physikalisch-Technische Reichsanstalt at Charlottenburg. After a preliminary treatment of the articles for three days, water at 18° C. acting during seven days extracted only 0.002 milligram of alkali (Na<sub>2</sub>O) from each 100 sq. cm. of surface exposed, and in three hours at 80° only 0.009 milligram was removed. The material is therefore classed as "water-resisting" glass. Other tests adduced show the extent of the action exerted by boiling solutions of sulphuric acid, sodium carbonate, and sodium hydroxide upon the glass during specified periods, and also the effects of sudden change of temperature. The results go to show that the new glass is a very satisfactory material for chemical apparatus.

IN addition to the books referred to in "Forthcoming Books of Science" (*NATURE*, March 10), the following works are announced:—"Tomatoes and How to Grow Them," F. R. Castle; "Mushrooms and their Cultivation," T. W. Sanders; "Bees for Profit and Pleasure," H. Geary; "Window and Indoor Gardening," T. W. Sanders (*Collingridge*); "A Book about Sweet Peas," W. P. Wright; "Garden Guide," W. P. Wright (*Headley*); "Radio-chemistry," A. T. Cameron (*Dent*); "The History of Chemistry," vol. ii., Sir Edward Thorpe, C.B., F.R.S.; "Last Words on Evolution," E. Haeckel; "The Evolution of Man," E. Haeckel, translated by J. McCabe, 2 vols., new edition; "The Story of Creation," E. Clodd, new edition (*Watts*); "A Text-book of Nervous Diseases," Drs. W. A. Turner and T. G. Stewart; "The Practice of Surgery," W. G. Spencer and G. E. Gask; "The Malarial Fevers, Hæmoglobinuric Fever, and the Blood Protozoa of Man," Captain C. F. Craig (*Churchill*).